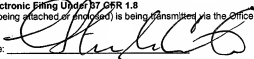


IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Masashi Enomoto et al.
Serial No.: 10/527,474
Confirmation No.: 3592
Filed: March 11, 2005
For: OPTICAL/ELECTRICAL CONVERSION ELEMENT AND
METHOD OF MANUFACTURING THE SAME, AND
PHOTOSENSOR AND SOLAR BATTERY
Examiner: T. T. Trinh
Art Unit: 1795

Certificate of Electronic Filing Under 37 CFR 1.8	
I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being transmitted via the Office electronic filing system in accordance with § 1.8(a)(4).	
Dated: <u>10-8-09</u>	Signature: 

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Applicants request review of the rejections in the above-identified application. No amendments are being filed with this request. This request is being filed with a Notice of Appeal.

REMARKS

The claims in this application stand rejected under 35 U.S.C. §103. These rejections are appropriate for consideration under the Pre-Appeal Brief Conference Program, as established at 1296 *Off. Gaz. Pat. Office* 67 (July 12, 2005), because they are based upon a clear factual deficiency.

Rejections under 35 U.S.C. §103

The Final Office Action mailed June 8, 2009 rejected claims 27-34 under 35 U.S.C. §103(a) as allegedly being obvious over Non-Patent Publication “Assembly of a Zn(II)-Porphyrin-Bipyridinium Dyad and Au-Nanoparticles Superstructures on Conductive Surfaces” (hereinafter, “Lahav”).

The Examiner alleges that the claimed dendrimer structures are obvious in view of the “dendrimers” of Lahav. The Examiner is factually incorrect for two reasons: First, the molecules of Lahav are not dendrimers. Second, dendrimer structures “depart rather dramatically” from non-dendrimers. Accordingly, the claimed dendrimer structures are non-obvious in view of the non-dendrimer molecules of Lahav.

Clear factual error in the Examiner’s rejection under 35 U.S.C. §103(a) is evidenced by the following statements made by the Examiner:

The molecules of Lahav are not dendrimers.

1. “Regarding claim 27, Lahav teaches... a light-absorbing dendrimer structure ...”
“Regarding claims [28-34], Lahav teaches all of the limitations stated above [including that of a dendrimer structure].” (Final Office Action, pages 3-5)

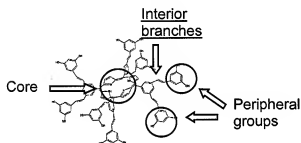
Contrary to the Examiner’s assertion in the Final Office Action, Lahav does not teach or suggest a dendrimer structure and thus Lahav does not teach or suggest all of the limitations of the independent claim which recites dendrimers. Please note that Lahav itself *never* refers to *any* its own molecules as “dendrimers.” Lahav is correct not to do so because all of the molecules of Lahav fail to satisfy the definition of a dendrimer as is commonly known to those of skill in the art. Applicant elaborates below.

2. “Lahav’s porphyrin is as a matter of fact a...dendrimer according to either Applicant’s description or the definition of Mansoor (e.g. porphyrin ring is the core, *alkyl groups before the oxygens are the branching units*, and the oxygens with substituents are the peripheral groups).” (Advisory Action, page 1, emphasis added)

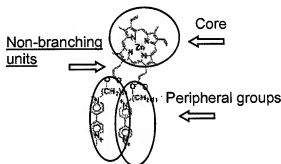
As acknowledged by the Examiner, “dendrimers are highly branched and have three distinct structural features: a core, multiple peripheral (end-) groups, and branching units that link the two.” (Mansoor M. Amiji *Nanotechnology for Cancer Therapy* 2007, CRC Press, p 529.)

Figure 1

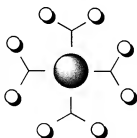
(a) A species of claimed dendrimers



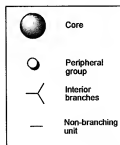
(b) The molecule of Lahav



(c) A species of claimed dendrimers (illustrated)



(d) The molecule of Lahav (illustrated)



(e) Interior branches



(f) The non-branching units of Lahav



Applicant asserts that the Examiner has misapplied Mansoor's above-indicated definition of "dendrimer" to the molecules of Lahav and erroneously concluded that Lahav teaches a dendrimer. None of the molecules of Lahav comprises all three of the above-indicated structural features of "dendrimers."

Specifically, the molecules of Lahav lack interior branches. (See the structures of Figs. 1a and 1b, and the illustrations of Figs. 1c and 1d). The Examiner alleges that the "alkyl groups before the oxygens are the branching units." However, the alkyl groups before the oxygens are linear and not branched. A comparison of the linear alkyl groups of the molecule of Lahav and the interior branches of the dendrimer in Figure 1 reveals that the alkyl groups are not branched (See Figs. 1e and 1f). The linear alkyl groups of Lahav each tether a single core to a single peripheral group, as defined by the Examiner in the Advisory Action. As such, each peripheral group of Lahav is separately bound to the core by a non-branching linker. In contrast, the interior branches of dendrimers each tether a single core to multiple (e.g. two) peripheral groups (as illustrated in Figs. 1c and 1d). Thus, in a dendrimer, multiple peripheral groups are bound to the core by the same interior branching group.

As should be appreciated from the forgoing, Lahav does not teach or suggest a dendrimer structure.

3. "Mansoor and Boas *et al.* are... not about [the] dendrimer... as claimed." (Advisory Action, page 1)

Applicant disagrees with this statement and wishes to clearly reiterate that the dendrimer structures recited in claims 27-34 satisfy Mansoor's art-recognized definitions of "dendrimers." As illustrated by a non-limiting example in Figure 1, dendrimer structures comprise a core, peripheral groups, and interior branching units that link the two. The claimed dendrimers satisfy Mansoor's art-recognized definition. Applicant thereby asserts that Mansoor's art-recognized definition of dendrimer pertains to the dendrimers recited in the claims.

The claimed dendrimers are non-obvious in view of the molecules of Lahav

The claimed dendrimer structures are "dendrimers" as defined by Mansoor, whereas the molecules of Lahav are not. Further, dendrimers are non-obvious in view of non-dendrimers.

As indicated on page 529 of Mansoor: “Dendrimers are a relatively new class of polymers with structures that depart rather dramatically from traditional polymers.” As such, the claimed dendrimers are non-obvious in view of molecules which are not dendrimers, such as those of Lahav. The unique properties of dendrimers are well known to those of skill in the art, as discussed in Mansoor and Boas *et al.* (Applicant notes that, in response to the Examiner’s request, Applicant has separately submitted to the USPTO the entire textbook chapters from which each of the evidentiary references to Mansoor and Boas *et al.* were taken.)

Conclusion

The Examiner's rejection is factually flawed and thus insufficient to sustain a *prima facie* case of obviousness. The Examiner asserts that the claimed dendrimers are obvious in view of Lahav's "dendrimers." The basis of the Examiner's rejection is factually incorrect because Lahav does not teach a dendrimer, suggest a dendrimer, or suggest that any of its molecules resembles a dendrimer. The claimed dendrimers "depart rather dramatically" from the molecules of Lahav as can be clearly seen in Figure 1. Accordingly, the claimed dendrimers are non-obvious in view of Lahav.

The rejection of Applicants' claims 27-34 under 35 U.S.C. §103(a) clearly is erroneous, and Applicants respectfully request that the panel reverse these rejections.

Dated: October 8, 2009

Respectfully submitted,

By 

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